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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,838	04/02/2001	Hyun-doo Shin	Q59546	8476

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WASHINGTON, DC 20037-3213

EXAMINER
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LE, BRIAN Q

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/14/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/822,838

Applicant(s)

SHIN ET AL.

Examiner

Brian Q. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 7-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### Response to Amendment and Arguments

1. Applicant's amendment filed January 08, 2007, has been entered and made of record.
2. Applicant's arguments with regard to claims 1-11 have been fully considered, but are not considered persuasive because of the following reasons:

Regarding the rejection of claims 1-11 under 35 U.S.C. 112, first paragraph, the Applicant cited the support for the limitation of claims 1 and 9 in the specification at page 3, line 12; page 4, line 14; page 5, line 11; and page 13, line 9 to show the support for the limitation. However, after reconsideration, the Examiner still does not find the support for the limitation c) "increasing a threshold value used for denoising if a pattern quantizing value is retained" (emphasis added). Regarding page 3 of the specification, the disclosure supports a concept increasing a threshold value until a pattern quantizing value is retained, denoising data and describing pattern repetitiveness of an image using the quantizing value of the denoised data and the threshold value used for denoising. Page 4 of the specification supports a concept of describing pattern repetitiveness of an image uses pattern quantizing value and the threshold value used for denoising. Page 5 of the specification again supports a concept of determining the level number of the denoised data, the pattern quantizing value, and the threshold value used for denoising. Also page 13 of the specification supports a concept of processing pattern quantizing value and the threshold value used for denoising. Therefore, the cited locations of the specification do not show the support for "increasing a threshold value used for denoising if a pattern quantizing value is retained". Thus, the rejection is maintained.

Regarding claim 1, the Applicant argues (page 7 to page 8 of the Remarks) that the combined references do not disclose the limitation "increasing a threshold value used for

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denoising with a pattern quantizing value is retained". The Examiner respectfully disagrees. Let consider Watanabe's Reference carefully. Watanabe teaches a concept where threshold voltage decreases when letters are read out poorly (column 1, lines 51-53). Thus the threshold voltage increases when the letters are read out better base on the contrast is high, therefore remove the noise from the letters (column 1, lines 53-54). So clearly, Watanabe teaches a limitation "increasing a threshold value used for denoising". Further, Watanabe teaches a pattern quantizing value can be obtained (column 1, lines 55-60) and that the processes of increasing threshold value used for denoising (as discussed above) and the obtaining/retaining pattern quantizing value are process depending on one another ("It will be apparent that if the threshold voltage level for quantization is increased over that at which said pattern is obtained there will") (column 1, lines 65-68). Thus, this support the conditional limitation "if" as "increasing a threshold value used for denoising if a pattern quantizing value is retained.

Thus, the rejections of all of the claims are maintained.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-4, 9 and 11-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding independent claims 1 and 9, the Applicant cited the support for

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the limitation of claims 1 and 9 in the specification at page 3, line 12; page 4, line 14; page 5, line 11; and page 13, line 9 to show the support for the limitation. However, after reconsideration, the Examiner still does not find the support for the limitation c) “increasing a threshold value used for denoising if a pattern quantizing value is retained” (emphasis added). Regarding page 3 of the specification, the disclosure supports a concept increasing a threshold value until a pattern quantizing value is retained, denoising data and describing pattern repetitiveness of an image using the quantizing value of the denoised data and the threshold value used for denoising. Page 4 of the specification supports a concept of describing pattern repetitiveness of an image uses pattern quantizing value and the threshold value used for denoising. Page 5 of the specification again supports a concept of determining the level number of the denoised data, the pattern quantizing value, and the threshold value used for denoising. Also page 13 of the specification supports a concept of processing pattern quantizing value and the threshold value used for denoising. Therefore, the cited locations of the specification do not show the support for “increasing a threshold value used for denoising if a pattern quantizing value is retained”.

Also regarding claims 12-13, the limitation “increasing the threshold value used for denoising if a current pattern quantizing value is identical to a previous pattern quantizing value” is not support in the specification. The Applicant is required to provide exact page number, and line number for the disclosure.

Other claims are rejected because they are depending to claims 1 and 9.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4-5 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Nakagawa U.S. Patent No. 5,291,282 and Katsuyama U.S. Patent No. 6,771,813, further in view of Watanabe et al. U.S. Patent No. 3,688,266.

Regarding to claim 1, Nakagawa teaches a method of describing pattern repetitiveness of an image (FIG. 6) comprising the steps of:

(b) decomposing the projected image down own level (divide the image into blocks) (column 7, lines 1-5);

(c) increasing a threshold value until a pattern quantizing value is retained (column 11, lines 59-68 and column 30, lines 59-68), and denoising the decomposed data (amplification and noise removal) (column 33, lines 1-10); and

(d) describing pattern repetitiveness of the image using the pattern quantizing value of the denoised data and the threshold value used for denoising (column 33, lines 1-15).

Nakagawa does not explicitly teaches the concept of projecting an image on a predetermined axis having a predetermined direction and does not teach the increasing a threshold value if a pattern quantizing value is retained. Katsuyama further teaches a pattern image processing (column 3, lines 35-38) wherein projecting an image on a predetermined axis (x-axis and y-axis) having a predetermined direction (FIG. 13 a, FIG. 17 and column 5, lines 40). Modifying Nakagawa's

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method of describing pattern repetitiveness of an image according to Katsuyama would be able to apply the axis and direction to further describe the pattern/similarity of the image, thus the ability to outline the pattern (column 5, lines 38-44). This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Nakagawa according to Katsuyama. Watanabe also teaches a pattern recognition process comprises a step of increasing a threshold value (increase voltage threshold value) if a pattern quantizing value is retained (the obtaining/retaining of quantized pattern which also is the obtaining/retaining of quantized value as shown by FIG. 2A; FIG. 2B and FIG. 8) (column 1, lines 45-67; FIG. 2A; FIG. 2B and FIG. 8). Thus, also modifying Nakagawa's method of describing pattern repetitiveness of an image according to Watanabe would be able to operate threshold at different level to further distinguish pattern (whether between letter or blank spaces) (column 1, lines 47-50). This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Nakagawa according to Katsuyama and Watanabe.

Regarding claim 4, please refer back to claim 1 for the teachings and explanations.

For claims 5 and 9-11, please refer back to claim 1 for further explanation.

Regarding claim 12, as discussed in claim 1, Watanabe teaches the method wherein the step (c) comprises increasing the threshold value used for denoising if a current pattern quantizing value is identical to a previous pattern quantizing value (increasing quantizing value when comparing to the threshold value) (column 1, lines 65-67; column 5, lines 6-13, and 39-42; and column 12, lines 14-27).

Regarding claim 13, as discussed in claim 1, Watanabe also teaches the method wherein the step (c) comprises:

Denoising the decomposed result data using a predetermined threshold value (column 1, lines 45-67);

Calculating a current pattern quantizing value of the denoised data (column 1, lines 45-67);

Increasing the threshold value used for denoising if the current pattern quantizing value is identical to a previous pattern quantizing value (increasing quantizing value when comparing to the threshold value) (column 1, lines 65-67; column 5, lines 6-13, and 39-42; and column 12, lines 14-27).

7. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Nakagawa U.S. Patent No. 5,291,282, Katsuyama U.S. Patent No. 6,771,813, Watanabe et al. U.S. Patent No. 3,688,266 as applied to claim 1 above, and further in view of Acharya U.S. Patent No. 6,574,374.

Regarding claim 2, as discussed in claim 1, Nakagawa teaches the concept of decomposition. However, Nakagawa does not disclose the concept of decomposition is based on a discrete wavelet transform. Acharya teaches the system removing noises/artifacts (abstract) wherein the decomposition is based on a discrete wavelet transform (column 4, lines 1-10) to further remove the artifacts from the image. Modifying Nakagawa's method of describing pattern repetitiveness according to Nakagawa would be able to further remove the noise and artifacts from the images. This would improve processing and therefore, it would have been obvious to one of ordinary skill in the art to modify Nakagawa according to Acharya.

For claim 6, please refer back to claim 2 for the explanation.



*Allowable Subject Matter*

8. Claims 3-4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
9. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

**Contact Information**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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March 12, 2007